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THE CONTRIBUTION OF EUROPEAN EXPERIENCE ON LOW DIETS TO OUR TEACHING OF DIETETICS[1]

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It may even yet be too soon to attempt to draw together the teaching of the recent vast experiment in Europe upon the nutrition of man. War diet in practically every country in Europe whether belligerent or neutral, meant an insufficient and in most cases, a one-sided diet. When such a diet is followed faithfully perforce by several million subjects for four years or more, some general consistent results should be observable, and should be available in the scientific literature. General agreement by observers may be said to have been reached on a number of points, but striking discrepancies are evident in the observations and conclusions of competent men upon other equally important details. A brief résumé of the recorded data may therefore prove of some value.

Kinds of evidence. There are two varieties of data upon the undernutrition of the war, as upon other biological questions, the statistical or clinical and the experimental types. The first of these is presented in the reports of physicians, orphan asylums, and other institutions, hospitals, prison and army camps, state food or health bureaus. The second is the result of the activity of research laboratories in Europe and America. Both kinds of evidence must be considered in any review of this sort, although the statistical type far exceeds the experimental in quantity and variety.

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Some of the statements published early in the course of the war are somewhat at variance with those recorded later, and also those which have appeared since the close of the war. Military and political policy may account for these differences, and economic need for the great increase in number and the pathos of the reports emanating from central Europe after the armistice was signed.

General underfeeding, that is, deficiency in quantity of food, must here be considered separately from specific qualitative deficiencies in the war diet, even though in fact both these factors of inadequacy were usually present at the same time. It is indeed difficult to judge whether the cause of such a symptom, for example, as the widely occurring inanition edema should be classified under the one or the other or both of these deficiency factors.

Inadequate energy content of war diet. The largest number of observations of the caloric value of the war diet was made by German investigations. N. Zuntz and A. Loewy of Berlin, and later Loewy with other collaborators have recorded exact data on this point for each year of the war beginning in 1916. Pfaundler made similar observations in Munich, and Durig in Vienna.

The content of the war ration. Pfaundler (1) gave the civilian ration, in Munich in October, 1917, as follows: for adults, protein 56.7 gms., fat 30.3 gms., carbohydrate 308 gms., yielding a total of 1760 calories, and made up of bread, meat, milk, potatoes, sugar, cheese, eggs, butter, and grits. Children in the second year were given the adult ration plus 1000 cc. of milk, in the third and fourth years the adult rations plus 500 cc. of milk, and in the fifth and sixth years the adult ration plus 250 cc. of milk. After the sixth year children were given the adult ration alone. Pfaundler draws the following comparison of these allowances with what he believes to be the true requirement:

	PROPER RATION (PFAUNDLER)	MUNICH RATION (OCT. 1917)
	calories per day	*calories per day*
1 to 3 months	—	943
4 to 12 months	—	1133
2nd year	1550	2410
3rd and 4th years	1550	2082
5th and 6th years	2070	1920
6 to 16 years	2070	1760

This ration was noted as unaltered in January, 1918.

A little earlier Pfaundler (2) had stated that some advantage seemed to accrue to children between the ages of 2 and 6 years, from this unusually generous diet, in warding off hereditary taint, spasmophilia and similar diatheses.

Jansen (3), from F. Müller's clinic in Munich, gave the ration in effect in the spring of 1917 as yielding 1600 calories and about 60 gms. of protein.

Loewy (4) stated that the daily ration in Berlin in April, 1916, yielded an average of 2320 calories, and 68.3 gms. of protein; in July, 1916, 2230 calories and 66.7 gms. of protein; and in April, 1917, 1985 calories and 59.9 gms. of protein. Loewy and Brahm (5) in 1917, made a study of the food eaten daily by nine members of the Berlin garrison, doing light work, and found it to have a fuel value of only 1400 to 1800 calories, and 25 to 50 gms. of protein. They state that toward the end of the war the poorer people in Berlin had less than 2000 calories and 50 gms. of protein. Seventy per cent or more of the calories were derived from carbohydrate. The chief complaint made by Rubner (6) concerning the food situation in Germany, following the armistice, was with reference to the low protein content of the ration. He says that bread and potato do not restore depleted muscle, and for this is roundly scored by Hindhede (7) who considered these foods protein sources of high value.

A number of statements are available as to the English civilian ration. The compulsory ration early in 1918, according to the London letter to the Journal of the American Medical Association (8), contained $1\frac{1}{4}$ pounds of meat, 4 oz. of butter or margarine, 8 oz. of sugar per week. Other foods such as bread and fish were not rationed, but milk was obtainable only for children, nursing mothers, and the sick. Cream was not allowed for any one. According to Waller (9) this restricted war ration in 1918 yielded 1977 calories, sufficient energy content for his own needs, a sedentary worker whose weight had declined from 190 to 175 lbs. during the third war year.

The English ration was apportioned per "head" of population, that is, 0.75 of the man value of the calculated need. The "man" value of diets was revised by the Inter Allied Food Commission to a more generous proportion than that devised by Atwater. Greenwood and Thompson (10) compared these standards as follows:

ATWATER'S COEFFICIENTS		NEW CO-EFFICIENT OF INTERALLIED FOOD COMMISSION	
Ages in years	Man value	Ages in years	Man value
0–5	0.4	0–5	0.4
6–9	0.5	6–9	0.7
10–13	0.6	11 and over Males	1.0
14–15 Males	0.8	11 and over Females	0.83
14–15 Females	0.7		
16 and over Males	1.0		
16 and over Females	0.8		
All children average	0.51	All children, combined ages averaged for the population	0.68

This more generous food allowance for children is in accord with the later work of Dubois and others (11) and of Gephart (12) on the extraordinarily high energy output of young boys, and with the summaries of food requirements of children recently published by Talbot (13) and by Lusk (14).

The Inter Allied Scientific Food Commission in 1918 adopted the following averages as representing the energy output of adults:

	GROSS	NET
Sedentary work	2750	2500
Average work	3300	3000
Heavy work	5000	3900

The average diet of 3000 calories was expected to contain a minimum of 52 to 70 gms. of protein, 75 gms. of fat, and 500 gms. of carbohydrate.

The Belgian ration in 1917, according to Herbert C. Hoover (15) contained 60 gms. of protein, 40 gms. of fat, and 300 gms. of carbohydrate with a total of 1800 calories. Upon this amount of food large numbers of people lived and worked apparently with little ill effect. He reports that the public health was maintained and that an actual decrease in mortality resulted.

Loss of body weight. The most obvious result of the quantitatively inadequate diet was the rapid and continual loss of body weight. As early as 1916, Zuntz and Loewy (16) reported losses of their own body weight of 10 to 12 per cent. Stationary weight was reached at some such point because of resulting adjustment of metabolism at the new level

to the lowered energy intake. Durig (17) reports losses of as much as 80 lbs. in adults in Vienna, and the majority of the population of that city were said by December, 1919, to have lost fully 15 per cent of body weight (18).

Loss of weight and failure to grow normally was even more apparent among children. In the third war-year, G. Fuhge (19) made a study of the food intake and growth of children 6 to 14 years old in an orphanage in Berlin, and found a considerably retarded growth, serious under weight, and constant nitrogen loss in nearly all cases. Young babies among the poor of Austria (18) even now are reported as 5 to 20 per cent below normal in weight. Pfaundler (20) has recently noted a curious leveling of weight among the children of various social strata in Munich. Six year old children, in the period betwen 1914 and 1919, showed an average decrease in height of 3 cm. and in weight of 1 kg. below the normal. Since this decrease was greater among children of the professional than the poorer families, the effect of the war seems to tend toward a leveling of the classes from the somatic as well as political and economic viewpoints.

From Prague, Pollak (21) reported the average daily gain in weight of a certain group of children from 1913 to 1917 as decreasing from 20.6 to 10.8 gms. At the same time the mortality in this group increased from 4 to 15 per cent.

There is nothing surprising about these statements concerning loss of body weight following underfeeding, and they are referred to here merely because of the continual references to the fact in the medical literature. The persistent opinion, held by many persons whom one would expect to be better informed, that food intake and body weight are not necessarily closely related can best be answered by reference to this gigantic Banting experiment in Europe. A short time ago a visiting professor from Poland laughed incredulously in my hearing at a statement that body weight might be reduced according to a pre-arranged rate by regulation of food ingestion. The next moment, apparently without realization of the inconsistency, this same professor began a moving story of the emaciation of his compatriots resulting from war underfeeding.

(To be concluded)

THE HIGH SCHOOL CAFETERIA AS A HOME ECONOMICS PROJECT

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A superintendent, in telling proudly of the work of his school, recently said that the cooking classes in his high school served luncheon every day to two hundred children, and that they served, not just one hot dish, but a complete meal, including sandwiches and ice cream. He was somewhat surprised to be told that home economics people did not consider making sandwiches and dishing ice cream every day to be of educative value, and that in conducting so large an enterprise there was grave danger of exploiting the children instead of educating them. If the size of the undertaking is not a criterion of its worth, just where do we find its value? Can a high school cafeteria be so conducted as to have a rightful place in our course of study?

In every high school there are some boys and girls who can not go home for the noon hour, and in many of the smaller schools no provision is made for these children. They bring lunch boxes from home, or buy cookies and sweet chocolate at the corner grocery, and eat a cold luncheon every day. In such a situation, the cooking teacher recognizes a responsibility which belongs specifically to her field of service, and an opportunity to make the influence of her department felt throughout the whole school, in better health and better food habits. What these children eat in school at noon, and where and how they eat it, are questions which intimately concern the food department of any school.

We found this situation in Wisconsin University High School a year ago. The plan which we have tried there may be of interest to other teachers who are finding similar conditions, and may serve to show how the work can be organized as a project with distinct educational value.

It was not difficult to show the girls in one of the cooking classes that this would be an interesting piece of work for the winter months, and an opportunity to be of real service to the school. From their very simple study of nutrition, they could see that a hot dish, to supplement the food brought from home, would be highly desirable to maintain the best possible physical condition in these children, and that an attractive, comfortable place in which to eat would be conducive both to good digestion and good table manners. To organize the work intelligently and to carry it out efficiently required a preliminary study of the various

lines of work involved. Since this was an elementary class, we needed first of all to learn to cook some suitable dishes, so we had a series of lessons on cream soups, cocoa, egg dishes, baked hash, bread pudding, and other dishes which we believed would be good for the children and also popular with them. In connection with these lessons, the girls worked out the large-quantity recipes, with costs, to file away ready for use later. They also studied what foods should be brought from home to eat with the hot dish, to make well rounded meals, and planned posters for the main bulletin board for the purpose of educating their prospective customers.

Working out costs brought up the question of finances. We decided not to try to make a profit, since this was not intended as a money making enterprise, but rather as a bit of social service, and we wanted to keep the food within reach of the ones who would need it most. An average of the costs showed that a flat rate of five cents per serving would cover the cost of the food. By making a little study of marketing, we found that careful buying would save money. We also had to learn how to keep accounts, since any one who handles other people's money must necessarily know where every cent goes. We found that by multiplying five cents by the average number of servings per week, and allowing ourselves that sum, we could budget the money in such a way as to be sure not to run in debt.

Then we came to the important consideration of organizing the work. We decided that a committee of three was the best size to handle it; so the class was divided into groups of three, and each group elected its chairman. We discussed the duties of the chairman and the committee members, what real leadership involves, and what sincere coöperation means. Then committee number one had a meeting to plan the dishes for the first week, the posters for the main bulletin board, the market order, and their individual duties. They started the account book, which was to be balanced and signed at the end of the week, and handed over to the next committee; and they arranged the large equipment where it would be conveniently near the stove, sink, and table which were set apart for their special use. They decided where to have the line of customers pass, and how they wished these customers to rinse and stack their dirty dishes, in order to make dish-washing as easy as possible for the committee. Then they went off to do their marketing and put up their posters.

When the opening day of the "one-hot-dish-cafeteria" came, the girls of committee number one spent their class hour preparing the food, wondering if it could possibly be right to use all those quarts of milk for the soup, and put in salt by the tablespoonful; the rest of the class and the teacher spent that class period in ordinary laboratory work. During the following weeks, while the cafeteria was running, the class work consisted of new cafeteria dishes, and a series of baking lessons. Many times we were glad to use large recipes for things like cookies and cakes, and then turn the products over to the committee. The boys and girls were always delighted to find these surprises on sale and bought up the supply promptly.

The lack of a dining-room seemed a serious obstacle at first, but we began by using the sewing-room and an adjacent recitation room. This made our need of a dining-room so evident that the school gave us a room for this purpose, and had the walls and wood work freshly painted. We bought six kitchen tables and twenty-four chairs, at a cost of fifteen dollars and fifty cents for each set of one table and four chairs, and the girls painted and enamelled them all, designing their own color scheme of gray with green and black trimmings. This room and the sewing room together take care of the children very comfortably.

The cafeteria work proved to be a definite and interesting project which enlisted the enthusiastic efforts of the girls. The many problems involved were of real educative value. The girls learned something of marketing and large quantity cooking; they found a real need for budgets and accounts, so that the application of this to house management was easy and reasonable; they learned a little of how dietetics should be used to plan meals and help maintain health; the aesthetic side of serving was brought out through discussions about how to make the food attractive and appetizing; and we all learned so much about re-finishing old furniture, and so enjoyed wielding a paint brush that several of the girls went home and painted the kitchen chairs, or the porch furniture, or an old set of bedroom furniture.

The most important educative value, however, was its effect upon the development of the girls themselves. The situation was always a social one; the committee had to work together, first of all. Some chairmen showed real executive ability, and considerable initiative combined with tact in handling their committee members; many girls developed an assurance and managerial ability which they had never suspected they possessed; some learned for the first time the value of

team-work; occasionally someone shirked, but the pressure brought to bear on the lazy person by the rest of the class was usually enough to bring about at least a temporary reformation. In one case a girl became so ashamed of herself for slipping out of her share of the work that she volunteered for extra work to make up for it.

In the second place, the committee had to take the responsibility for the food served, and learn to accept cheerfully both the compliments of their customers and the adverse criticisms, which children are likely to make in rather a merciless fashion. They also had to train these customers in the clean-up program outlined for them, or accept the consequences, which meant cleaning up after them.

There are many occasions during work of this kind when decisions must be made, often very quickly, and when all a girl's ingenuity is called into play to meet some emergency. The girl must use her own best judgment and must adapt herself quickly to the situation, without waiting to ask some one else what to do. Her self-reliance and self-confidence grow rapidly, and she is eager to have her turn at cafeteria work come again.

The position of the teacher, after the preliminary period of study is over and the cafeteria is in full swing, is that of advisor and interested observer. She is in the room while the committee prepares the food but is so busy conducting the regular class work that the girls of the committee feel distinctly thrown on their own resources. She will wish to be in the building during the noon hour, unless there is some other teacher within call in case of accident, but she will not necessarily be in the kitchen. She will be keenly interested to see how the girls handle it all, but will leave the responsibility entirely in their hands.

It is evident that this method of organization is adapted to the smaller schools. If the cafeteria grows to such proportions that the class cannot handle all the work, hired help should be secured for the washing of dishes and paring of potatoes, reserving for the class the managerial side of the work. If the enterprise becomes too large, either through an effort to serve a whole meal instead of one dish, or because of the size of the school, it becomes an exploitation of the girls rather than a project of educational value. In that case, the lunch room should be put on a separate basis, with its own manager. If friendly relations can be maintained so that classes can contribute products to the lunch room from time to time, and so that the girls can be given some experience in lunch room management, that would be highly desirable.

To have a rightful place in our home economics course of study, the cafeteria work should measure up to these three standards: it should contribute something educative every day to each girl; the members of the class, not the teacher, should receive all the beneficial experience which comes from the executive side of the work; and it should be so conducted as to have an influence on the food habits of the school as a whole.

GASTRIC RESPONSE TO FOODS

ABSTRACTED BY MINNA DENTON

(Concluded)

VII

The seventh paper deals with the response of the stomach to vegetables, raw, and also cooked in different ways. One hundred and twenty-four experiments were made on 25 normal men. Presumably 100 grams of vegetables were fed in most cases, though this detail is not made clear. However, mention is made of the fact that only 50 grams were fed in the case of potato chips, and of radishes; 50 to 100 grams in the case of mushrooms. The average evacuation time for all subjects of the rapid-emptying type was 2 hours and for the slow-emptying type 2½ hours. The averages of the high points of the total acid curves were 70 and 77, respectively.

The response of the stomach to potatoes prepared in the following different ways was determined: whole boiled, creamed, mashed (with and without milk and butter), baked (with and without butter), potato salad, French, German, and plain fried potatoes, and potato chips. All of these left the stomach in moderate time or 1½ to 2½ hours for rapid type individuals and 2 to 3½ hours for the slow type. Baked potatoes with butter required more than the average time but plain baked potatoes about the same time as boiled potatoes. The addition of milk and butter to mashed potatoes had little effect nor did creamed potatoes or potato salad differ much from plain boiled potatoes as regards gastric response. Fried potatoes left the stomach as rapidly as potatoes prepared in other ways. French fried potatoes required a few minutes longer than German or plain fried potatoes. Potato chips (only 50 gms. fed instead of 100 gms.) were handled very rapidly by the stomach, considering their high solid and fat content.

Sweet potatoes whether boiled, baked, or fried remained longer in the stomach than white potatoes cooked in the same ways. Dasheens, whether boiled, baked, or fried required a longer period of gastric digestion than white potatoes but no longer than sweet potatoes. Cassava roots were fed boiled and baked and were found to require a little longer than white potatoes similarly prepared. Boiled oyster plant required about the same period of gastric digestion as white potatoes.

Boiled red beets left the stomach rapidly, i.e., in from 1 to 2 hours. After being pickled in vinegar they left still more rapidly, the vinegar evidently hastening the evacuation. Raw carrots also left the stomach rapidly (in from $1\frac{1}{2}$ to 2 hours). Boiled carrots took distinctly longer ($2\frac{1}{4}$ to $2\frac{1}{2}$ hours). Boiled parsnips required a longer time than beets or carrots. Boiled turnips left the stomach in $2\frac{1}{2}$ hours. Radishes in amounts of 50 grams left the stomach very rapidly (in from $1\frac{1}{4}$ to $1\frac{1}{2}$ hours).

Baked beans, as might be expected from their high protein content, remained somewhat longer in the stomach than most other kinds of vegetables and developed higher combined acidities. String beans, on the other hand, left the stomach rapidly, resembling more closely the green vegetables in stimulatory power upon the stomach. Boiled peas required $1\frac{3}{4}$ hours in each of two cases or less time than baked beans. Boiled lentils appeared to require a little longer than peas, while raw endive resembled peas as far as evacuation times were concerned.

Asparagus left the stomach rapidly. Boiled cauliflower required only a few minutes longer in one case, but in a subject of the slow type showed delayed evacuation. Cabbage whether raw or cooked left the stomach rapidly even in subjects of the slow-emptying type. Boiled cabbage was not handled more readily than the raw. Cold slaw and sauerkraut required distinctly longer to leave the stomach than plain cabbage. Lettuce in spite of its bulky character was found to be one of the most easily evacuated of foods, the response to this food resembling that to cabbage. The addition of sugar and vinegar or oil and vinegar delayed evacuation. Celery in the raw state is evacuated more slowly than cabbage or lettuce, but creamed celery caused less difficulty. Spinach remained in the stomach distinctly longer than most vegetables.

Onions stewed and fried showed slower evacuation than other vegetables low in protein, but not longer than high protein vegetables, when fed in moderate amounts. Cucumbers did not impose any special burden on the stomach, whether salted or unsalted. The unsalted required but a few minutes longer than the salted cucumbers. Boiled squash required $2\frac{1}{4}$ to $2\frac{1}{2}$ hours or about the same time as boiled carrots or sugar corn. Raw tomatoes left the stomach very rapidly in all cases. Boiled tomatoes required a longer

time. Mushrooms require only a moderate period of gastric digestion—2¼ hours with a subject of the rapid type.

Stewed corn left the stomach almost as rapidly as raw carrots or tomatoes and boiled hominy required but little longer. Boiled unpolished rice and boiled barley were readily handled by the stomach and usually passed into the intestine sooner than boiled polished rice. Raw agar-agar (previously soaked in water) left the stomach in 1½ hours as compared with 2½ hours for boiled unpolished rice. Hemicelluloses appear therefore to leave the stomach very rapidly and show a certain analogy with vegetables such as cabbage and lettuce.

In general raw vegetables low in protein, as carrots, celery, tomatoes, cabbage, lettuce, and cucumbers, leave the stomach rapidly, develop moderately high free acidities but little combined acidity and leave the stomach without great change. Boiled vegetables show much more rapid and complete disintegration. Vegetables high in starch, such as potatoes, show very considerable starch digestion before leaving the stomach. In certain cases hardly any starch reaction could be obtained toward the end of digestion.

VIII

The eighth paper describes the effect upon gastric digestion of changing a palatable diet into an unpalatable one, by jumbling together into a mess all the foods used in the meal, smearing the food and dishes with charcoal to make them look dirty, laying newspapers instead of a cloth on the table, and producing an unpleasant smell by means of various chemicals. "In the first case (attractively served food) the nitrogen utilization was 86.7 per cent, in the second (unattractive) it was 85.6 per cent. The nitrogen balance showed a retention in the first period of 3.0 per cent, in the second of 6.4 per cent. This in spite of the fact that the subject was only with difficulty persuaded to eat the unpalatable food, and that another subject who was given the same kind of food became nauseated and could not continue."

At this point the reader may be interested to pause and consider a criticism[2] which this paper has called forth. The critic objects, that while normal digestive processes might successfully resist the interference of one or two unpleasant associations with food (dirt, bad smell, etc.), the result might be very different if there were a protracted period of subjection to unpalatable food conditions; that the physiological organism should be studied as a unit, and that when we so study it "we not only find that 'psychic stimuli' promote or retard the secretion of digestive

[2] Rôle of Psychological Factors in Digestion. Kantor, *Science*, 52 (1920), p. 200

juices, but that all actions of the individual are affected by the particular surrounding conditions of such actions." That the Philadelphia investigators are far from defending the wisdom of "eating unpalatable food in untidy surroundings" is, however, quite clear from a perusal of the original article.

IX

The ninth paper reports the profound effect of mental anxiety on gastric digestion. One of the subjects, a first-year medical student whose stomach had always previously been found normal, was given 100 grams of fried chicken on the morning of an important examination in chemistry and wrote his answers during the digestion test. The result was that the stomach emptied itself only at the end of $6\frac{1}{4}$ hours instead of $4\frac{1}{4}$ hours (as in the same test repeated a week later, with conditions removing all mental stress), and the highest total acidity was about 90 instead of about 65, as in the second test.

X

The tenth article reports further tests which confirm the results of those mentioned in the eighth and ninth papers. It reports also tests which show that the sight of appetizing food has a greater effect in inducing a preliminary flow of gastric juice (psychic or appetite secretion) than does either the smell or the taste of it.

XI

The eleventh paper reports a study which was made "of the influence of water, tea, coffee, and cocoa upon the gastric digestion of a uniform mixed meal as measured by the acid responses and evacuation times."

Evacuation of the stomach was not appreciably delayed by the drinking of 1 liter (about 1 quart) of cold water, cold or hot tea, hot coffee, either plain, with cream, or with cream and sugar. The addition of sugar alone to coffee delayed evacuation. Cocoa in 1 liter quantities markedly delayed evacuation. To a less extent this was true of half-liter volumes. One liter quantities of water, hot or cold tea, hot coffee, plain or with cream, delayed somewhat the rise of the level of intragastric acidity (i. e. acidity inside the stomach) as compared with the basal meal alone. As high acidities and normal evacuation were attained, however, these beverages must have stimulated gastric secretion, been rapidly evacuated, or more probably both.

Coffee with sugar alone delayed the development of gastric acidity. Coffee with sugar and cream has less effect. Cocoa delayed distinctly the development of intragastric acidity. One liter quantities of tea and coffee gave rise to marked acceleration of the heart beat, to vasomotor relaxation, tremors, and other nervous symptoms. Cocoa did not produce these effects but brought about a feeling of fulness at the stomach.

XII

The twelfth paper gives the results of 90 experiments with gastric digestion of pies, cakes, and puddings. "The average evacuation time on puddings for all subjects was 2 hours and 18 minutes as against 2 hours and 27 minutes for pies and 3 hours and 2 minutes for cakes. Averaging the highest total acidities, values were obtained for puddings of 92, for pies of 90, and for cakes of 90. Direct comparisons of the three types of foods on the same individuals indicated also that pies were handled more readily than cakes, and pudding somewhat more readily than either."

Fruit pies, such as apple, pumpkin, raisin, and peach, left the stomach in from 2 to $2\frac{3}{4}$ hours and developed a moderately high acidity (90 to 100). Most of the acidity is due to free hydrochloric acid, the acid combining powers of these pies being low. Cherry pie, high in sugar, remained in the stomach a few minutes longer than the above. Rhubarb pie was treated in the same way as fruit pies, leaving the stomach in from 2 to $2\frac{1}{4}$ hours. Custard pies left the stomach in moderate time ($2\frac{1}{4}$ to $2\frac{1}{2}$ hours) and possessed a fairly high acid combining power. Lemon meringue showed a similar response except that the acidity developed more slowly. Mince pies required a rather long time to leave the stomach ($2\frac{3}{4}$ to $3\frac{1}{4}$ hours) and developed high total and combined acidities. Pie crusts alone remained in the stomach distinctly longer than most whole pies or the contents alone of such pies, and gave a lower but more sustained acid curve. On the other hand, differences in evacuation time of whole pies and the contents of such pies were usually very slight so that pies with crust, if properly made, could by no means be classified as difficult for the stomach to handle. The addition of 50 grams of ice cream to a small piece of pie did not increase the burden of the stomach to any marked extent. The addition of 20 grams of cheese to apple pie increased the digestion time only a few minutes.

Angels' food cake remained distinctly longer in the stomach than devils' food cake and developed a higher total and combined acidity. Chocolate layer cake left the stomach in moderate time, acid secretion being depressed by the sugar of this cake. Fresh and old fruit cakes showed almost identical

acid responses and evacuation times in the human stomach. Strawberry shortcakes left the stomach in moderate time (3 to 3¼ hours) and developed high intragastric acidities. Lady fingers left the stomach in 3 hours or in about the same time as other cakes. Ginger bread evoked a rather slow acid response and left the stomach in moderate time. Cinnamon buns left the stomach sooner than most cakes but with a similar acid response. Bread with peanut butter remained in the stomach longer than cinnamon buns and developed a higher acidity. Bread with corn sirup left the stomach in 2½ hours, the sirup depressing secretion somewhat.

Doughnuts remained in the stomach a few minutes longer than crullers. Acidities developed a little more slowly in the case of crullers, due perhaps to the sugar and fat content. These fried cakes required a digestion time but little longer than the average for cakes. Cookies, in spite of their high content of dry matter, were found to leave the stomach sooner than most cakes, probably on account of their granular texture. Ginger cookies required a little longer than those less highly flavored, and the acid development was less rapid.

Chocolate corn starch pudding, rice pudding with or without raisins, Indian pudding, bread pudding, and gelatin left the stomachs of individuals of the rapid-emptying type very quickly (in 1½ to 2 hours). Rice puddings with raisins left a little sooner than plain rice pudding. Cabinet pudding, Brown Betty pudding, cup custard, and apple tapioca required only a few minutes longer. Plain tapioca remained in the stomach a little longer than apple tapioca. Plum pudding left the stomach slowly. The highest total and combined acidities were caused by Indian pudding, bread pudding, and cup custard, all of these being high in protein. The other puddings developed moderate acidities except gelatin, which produced little acid stimulation and left the stomach very quickly.

XIII

The thirteenth paper reporting gastric response to sugars and candies, summarizes findings as follows:

Large amounts (100 grams) of cane sugar or of glucose in concentrated solution markedly depressed gastric secretion and delayed evacuation of the stomach. Small amounts (10 grams) of either did not appreciably inhibit. Candies depress secretion and delay evacuation in proportion to their sugar content and the amounts of them ingested. This tendency is influenced, however, by flavoring substances and particularly by added food ingredients such as milk, eggs, or chocolate, which stimulate gastric secretion.

Candies should be eaten not before but after meals. Hard candies which must be sucked are preferable to cream candies for children because of the smaller quantity of less concentrated sugar solution derived from them.

Cane sugar and maple sugar elicited much the same response from the human stomach as glucose, although the possibility that the greater sweetness and less rapid absorption of the first mentioned sugars gives them a slight advantage is not excluded. Soft candies such as bonbons, soft creamy wafers, and the interiors of chocolate creams when given in 100 gram portions exerted the same depressing action on gastric secretion and evacuation as concentrated sugar solutions.

Peppermint oil used as a flavoring agent delayed evacuation, while strawberry fruit flavor appeared to accelerate it. Chocolate appeared to stimulate gastric secretion as indicated by experiments on milk chocolate, chocolate fudge, and chocolate creams, which gave higher acid figures than plain sugar candies. Stale chocolates remained in the stomach relatively long.

The sucking of hard candies introduced but a small amount of sugar into the stomach, which was readily evacuated, and exerted but little action on gastric secretion. Chewing caramels gave rise to a more voluminous secretion than cream candies, but evacuation times were about the same. Salt water taffy gave rise to less secretion, while gum drops left the stomach rapidly with little acid production. Plain marshmallows remained in the stomach rather long, but after being toasted these confections left the stomach rapidly and gave rise to high intragastric acidities. Licorice gave rise to a fairly abundant secretion and remained in the stomach for nearly three hours.

Sugared or buttered pop corn developed a moderate acidity and left the stomach rather quickly. The addition of honey to bread did not delay evacuation, although acid production was somewhat depressed.

It is to be noted, however, that this study of the effect of candy and syrup upon gastric action, differs in one important respect from the similar studies previously made on other foods. 100-gram portions of most of these foods correspond very well with amounts which may well be served at a single sitting; but in the case of candy or syrup, 100 grams is a larger amount than most persons would be likely to consume at once. It will be noted that, in the instances cited above, where this amount was reduced (honey on bread, only 20 grams; sucking of hard candies, only 5 to 15 grams actually ingested), the unfavorable results of sweets in the stomach were minimized.

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THE FOOD OF THE IMMIGRANT IN RELATION TO HEALTH

MICHAEL M. DAVIS, JR., AND BERTHA M. WOOD

(Concluded)

THE ITALIANS[3]

Italy has a climate much like that of California, which gives the people a long farming season, but in the hottest part of the summer in southern Italy very little work is done during the middle of the day. Wheat, corn, and other cereals, vegetables, fruits, chickens, pigs, and goats' milk constitute the food products of the farms. Some yield a greater variety than others, depending on the ambition and aggressiveness of the farmer.

The Italians make their own cheese from goats' milk; they lay in a store of dried peppers and strings of garlic for the winter, and they make enough tomato paste to last during the season. Here and there one finds olives raised for family use. These are pickled, both ripe and green, and used not only as a relish, but cooked with macaroni or, in northern Italy, with cornmeal.

The Italians who come to America are the peasants or country land workers. They are heavily taxed at home and almost no educational opportunities are provided for their children. Ready money is scarce, and saving is a slow process. The needs of the family are supplied from the farms direct, or by exchange with neighbors.

Italians may be divided into three groups: those from northern Italy, those from central Italy, and the sea-coast group—the Sicilians and those living on the shores of the Adriatic. The Northern group know as little about the foods of the central and sea-coast groups as they do of their dialects, and vice versa.

The Italians from the northern provinces use stronger drinks than wine, both at and between meals. Their diet consists of black coffee for adults, goats' milk for children, and bread without butter, for break-

[3] Studies already published concerning the Italians in this country include:—Dietary Studies in Chicago, 1895–96, Bulletin 55 of the Office of Experiment Stations; Italians in Chicago, in Report of the U. S. Commissioner of Labor, 1897; G. LaPiana, Italians in Milwaukee, 1915; The Italian in Chicago, Bulletin of the Chicago Department of Public Welfare, Feb. 1919. The first mentioned bulletin also includes a study of Bohemian diet.

See also Italian Cookery, by Eva Mariotti, in the JOURNAL for August, 1919.

fast. The bread is made of wheat, home grown and ground. It is heavy and dark in color because the wheat is not put through any refining process. The bread is made in large round loaves, or in oblong pieces, and is baked on the bottom of the oven without being placed in tins. Oftentimes it is baked on the stones in one side of an open fireplace, or out-of-doors on heated stones. This gives a heavy crust on all sides.

The mid-day meal is not considered an important one, as the men are out in the fields during the farming season which lasts from early spring till late fall. Often the women are with them helping with the work. Sometimes they take along bread, cheese, and coffee, sometimes a piece of sausage. If they return to the house they have bread, fried eggs, and black coffee. The important meal is served at the end of the day, and preparation for it is generally started early in the morning. The black pot is put over the fire, and into this is put a small amount of meat or some beans. Their variety of the latter is so great that they can use a different kind each day in the week if they wish. Later they add vegetables, then macaroni, and lastly fat, either lard or olive oil. Polenta may be started in this same black iron pot. This is a thick cornmeal mush, to which is added tomato paste or ripe tomatoes. Sometimes it is changed by the addition of grated cheese or bits of pork or garlic. It is eaten hot or, if allowed to cool, is sliced and fried in olive oil. This is eaten with bread and butter.

Proceeding south in Italy one finds the use of alcohol decreasing and more wine used at meals and on social occasions, accompanied by cakes. The food produced in central Italy is not very different from that of the North. It is, however, raised more abundantly, as the farming season is no longer. Fruits and vegetables are produced in quantity and the poorest people have them in abundance. Very little meat is used; it is served not more than once a week in some families, and in others on festive occasions only. Here again we find the many kinds of "pasta" or macaroni used in combination with different vegetables, garlic, and oil. When bread is eaten with it, no butter accompanies it. The peasants use very few pastries or cakes except on feast days; then they are elaborate, such as "Gateau Margherita" made with ten eggs and whites of five more, butter, flour and almond flavoring.

In the frosting of cakes the Italians exercise all their artistic ability, beautifying and ornamenting them. It is because of the expense and the unusual amount of time and work it takes to make them that pastries are not used oftener. Fruit takes their place in the every day diet of

the people. Goats furnish milk for the family. The children have it to drink, and the surplus is used for cheeses of various kinds.

Thus we see that the people of northern and central Italy have a very well-balanced diet, with protein from milk, cheese, eggs, and meat; carbohydrates from macaroni in its various forms and bread; mineral matter from fruits and vegetables; and fat from olive oil. From the milk, vegetables, and egg yolks they derive vitamines to promote growth. It is difficult to measure their daily food in calories as they generally have a one-dish meal prepared in a large kettle from which each one helps himself, eating until he is satisfied.

The occupation of the southern Italians outside the large cities, is fishing. Some are engaged in the sponge fisheries, others in coral fishing, while the largest proportion are fishing for food. As a result the sea-coast people have a more varied diet than the other two groups. Fish of innumerable kinds, including shell fish, are added to their daily menus, these ranging from snails, the smallest variety, to ink fish, one of the largest. Snails are sometimes combined with rice or macaroni. They are put into water and left to soak out of their shells. Then the shells are taken out and the water turned off, leaving the snail meats in the bottom of the dish. These are scooped out and mixed with the macaroni, to which may have been added garlic, green or red peppers, or tomatoes, for the southern Italians are fond of more highly seasoned food than the other two groups. All small fish are used in combinations of this kind, while larger fish are boiled, baked, or fried in olive oil and served with a tomato sauce, to which garlic and green peppers have been added.

The diet of the Italians in the cities is more expensive and varied than that of the people in the rural districts. Incomes are larger and transportation brings food materials from all parts of Italy, from northern Africa and even from this country. These people use more sweets, in the line of pastry and cake. Afternoon tea is always accompanied by tea cakes and light wine is served with small cakes.

Throughout Italy the variety of foods is more limited in the winter than in the summer, as the people have little knowledge of preserving fruits and vegetables, except the making of tomato paste, the pickling of peppers, cucumbers, and olives, and the drying of peppers and garlic.

On the arrival of the Italians in the United States they readily find friends and neighbors from their own section of the home country and establish their homes near them. From the different foods carried in

the markets one can generally tell from what locality the people came. Macaroni is not only imported, but is also manufactured in this country. There is Indian meal for their polenta, meat and fish in abundance, and plenty of vegetables and fruits of various kinds, but everything is much more expensive than at home. The Italian laborer here is paid larger wages, he handles more money than in Italy, but with the joy of this comes the realization that it costs much more to live.

The most important food that is missing from the Italian diet in this country is milk. Herds of goats and cows with their calves are not driven around our streets from door to door to furnish the day's supply of milk for a few pennies, as is done in some of the cities of Italy. No great effort was necessary in Italy to have milk; goats were inexpensive, both their first cost and their maintenance; cows were always kept on a farm if goats were not, and the more well-to-do often had both. These animals were considered as much a part of the place as the grape vines and fruit trees.

In this country it is an effort to get milk and it has to be planned for. As it is usually considered a drink rather than a food, the food is bought first; then if anything is left, and usually there is not much, it is used for milk.

More meat can be had than in the old country, and the Italian enjoys it, and feels better satisfied when he has it in large proportion with his macaroni and olive oil. While it was used only once or twice a week in Italy, now it becomes part of the daily dietary. The family like vegetables, but to get from them the amount of satisfaction and bulk to which they are accustomed would incur too great an expense. Either they leave out both milk and meat, and live largely on starches—bread, macaroni, and potatoes—and vegetables, or meat is used at the sacrifice of vegetables and milk. When the health of the family suffers through this great change in diet, one often hears, "My man no like his work, he sick," or "My child, he no good since he came here," always attributing the difficulty to the wrong cause. Eggs are another staple in the diet in Italy which is almost prohibited here because of high prices, unless the family raise chickens. Many of their soups require a large number of eggs, eggless soup being almost unknown to them.

These conditions and changes help to indicate the hard problem which the woman in the Italian family has to meet in this country. Doubtless she is unaccustomed to marketing, and generally has no one to help her who has solved the problem, so she quite naturally follows in the foot-

steps of others who have known no more than she "the way out" into a dietary suited to the new needs of her family and to American supplies. The result is that a readjustment takes place without any real plan for an adequate diet. The raw food materials of the Italian diet, many of which were easily procured from their own farms, when combined in their home country ways, furnished a cheap well-balanced diet. In this country, because of greater cost and more difficulty in securing, the Italians often have a poorly-balanced diet, and one short in some of the most important food elements.

The Italian children are given the adult's diet as soon as they are out of swaddling clothes. The larger the abdomen the stronger and healthier the mother considers the child. A diet of milk, strained cereal, and fruit juices is unknown to an Italian mother. Too large an amount of macaroni or rice and lard are usually included and often the children suffer from constipation because of this excess of starch with few vegetables and little fruit. The children learn to take tea or black coffee and bread without butter for breakfast. Usually this means a meal of 200 to 250 calories, composed of carbohydrates, instead of one of 500 calories, such as they should have obtained from a combination of protein, carbohydrates, mineral matter, and fats. At noon the meal often consists of bread again with a piece of bologna and more tea or coffee. At night or supper time comes the big meal of the day which is started in the morning, as in their native country, and cooked either in one large kettle or in several small ones, the contents being put into one in the last process of preparation.

The Italian woman, when she does cook a meal, spends much time and care, and the results are very appetizing. This fact gives encouragement, showing what an apt pupil she would be if taught early on her arrival how to market, what raw food materials like those of her home country can be secured, what substitutes can be used, and what a day's dietary, breakfast, dinner, and supper, should contain *and why*. In attempting to furnish this instruction, native dishes and raw food materials should be recognized and preserved as far as possible. If olive oil is a luxury, other vegetable oils may be introduced. Soups may be given that will have the Italian flavor of tomato or garlic or both. To them may have been added macaroni in one of its various forms, or rice, and this will furnish thickening in the place of eggs. Milk soups will be acceptable only when highly flavored or after the family have learned to like white sauces. When the value of the vegetables the Italians have

always cared for is explained, often they are willing to substitute more of them for meat. Cheese is used more sparingly here because the people cannot make it themselves and therefore must buy it. This adds another expense, with the result that less is used.

The Italians have as good combinations of food from which to select as can be found in American cook-books, when special diets must be given to those who are not well. Italian children do not need to be encouraged to eat macaroni, vermicelli, or spaghetti, which are usually well cooked. They are quite ready to eat oat meal or rolled oats if these are cooked in milk and raisins added. A constipation diet includes vegetables, served in the many different ways of cooking and combining, and fresh fruit or fruit juices. When constipation is found among the Italians it is usually due to the fact that they have been financially unable to secure vegetables, fruit, and olive oil and have lived exclusively on macaroni, rice, and lentils.

An Italian patient with nephritis finds it very hard to leave cheese out of his diet. He does not miss the other forms of protein so much. Very little meat is used at any time; eggs are used as thickening, and would not be missed if another thickening were used; but cheese furnishes flavor for many dishes. Therefore if any protein is to be allowed, cheese should be selected.

Tuberculous patients may be given milk in the same forms as are prescribed for undernourished children, and eggs in soups. The Italian people are not in the habit of using soft eggs, but have many recipes for using hard-boiled eggs. Patients may be taught to poach or drop them and serve a little grated cheese on them. In this way they learn to eat them. Sugar may be prescribed in fruit compotes—stewed fruits, made of either fresh or dried fruits. Raisins and almond paste are other forms of sweets.

Diabetic patients find it very hard to adjust themselves to a diet without any "pasta" or macaroni. Among the poorer people it has always been the staple at every meal. Vegetables used by them in many combinations are prescribed for this disease. Tomatoes may be scooped out, an egg dropped in each, and the tomatoes placed in a small dish and baked until the eggs are set. Mushrooms are often chopped and baked in tomatoes. Beans of all kinds are used in their dietaries and must be removed. Often the use of mushrooms may be encouraged in their place. Endive is enjoyed as well as dandelions and spinach.

If the Italians can secure their preferred diet it is usually well-balanced. Naturally they are painstaking, good cooks. It is not, therefore, at all impossible for a person who knows their native dietaries to help them to adjust themselves to the conditions in this country and to the needs in their local environment. Understanding of their dietary background is absolutely essential to successful results.

APPLICATIONS TO HEALTH WORK AND TO INSTITUTIONAL SERVICE

From our studies of dietary backgrounds it has become apparent:

1. That a family coming to this country from a wholly different environment is under an enormous handicap in attaining a satisfactory diet, particularly when the income is small.
2. That doctors, nurses, social workers, and even dietitians generally lack knowledge of the native diets and usual food habits of the foreign-born.
3. That a large number of the foods of foreign-born peoples are well adapted to their physical needs.
4. That most of these foods can be obtained in this country.
5. That the dietary errors arising in this country are largely due to disturbance of the balance in the diet due to such causes as change of environment or new scales of prices; and that the problem before the dietitian is not so much to introduce a complete "American" dietary as it is to restore the former dietary balance by supplying lost elements.
6. Knowledge of foods of the foreign-born and of their native dietaries is the foundation of all success in this endeavor. It is a necessity in dealing with many specific problems of health or of disease, and is invaluable as a means of mutual understanding and sympathy between the American-born and the immigrant. "The way to a man's heart is through his stomach." The soul of a family may be reached through the daily chores of the household.

It is obvious that a study of this kind should be extended to more race groups than the four which we have taken up as examples. Moreover it would be useful to enter into more detail in many respects, for success in dietary work, after certain general principles are accepted, is largely a matter of detail. Certain particular needs appear to arise and shape themselves as outstanding recommendations even as the result of this incomplete and tentative survey.

1. There is an evident need and a demand for printed material for professional workers such as visiting nurses, dietitians, home economics teachers, and social workers. There would seem to be a place for this material published in several forms as:

(a) A text-book, for colleges and hospitals where young women are trained as home economics teachers, dietitians or nurses, including a list of foods and the recipes of foreign diets corresponding to well-balanced American diets.

(b) A book somewhat less formal in character, for dietitians, visiting nurses, and medical-social workers, covering the diets of the different nationalities and races in relation to health, with particular instructions in the preparation of food, as well as descriptive matter and general principles.

(c) Several single reprints in leaflet form of this material for each nationality or race, each reprint containing some statement of general principles, a brief account of the dietary background of the race group, and also practical recipes.

2. There is need for published material which would enlighten Americans regarding the practical utility and enjoyability of many foreign foods. A study of "Foreign Foods which would Improve the American Dietary" would be an Americanizing agent of practical value for the use of home economics sections of women's clubs and similar organizations. American diet would be improved and (psychologically speaking) be enriched; and many Americans would be given a sympathetic appreciation and understanding of our foreign-born population through the practical medium of the kitchen and the dinner table.

3. The great practical interest which everybody has in food should be made use of in the teaching of English. There would seem to be room for the preparation and publication of an American Homemaking Primer, telling briefly and simply what to buy, how to use American stoves and American utensils, and introducing the best American foods to the reader. Such a primer might be especially good for the foreign-born woman who has just learned or is just learning English, or such a primer might also be printed in a foreign language or be bi-lingual.

4. An "International Menu" is needed for use in institutions of all kinds receiving any number of foreign-born. An "international menu" is one which is not confined to American dishes, but which contains each day at least one dish especially adapted to at least one of the nationalities or races represented among the patients. This would demon-

strate to the patients that the dietitian had considered them and would have a good psychological effect which would of itself help them physically. Thus in a menu for an institution with many different race groups, a characteristic Italian dish might be included one day, a Polish dish at another meal or on another day soon thereafter, and similarly the next day might remember the Jewish or Russian patients.

Such an international menu need not make the diet less acceptable to native-born Americans. It would give greater variety and would help the dietitians in their endless search for something new. As must be borne in mind, the practical value of such a menu lies in its psychological quite as much as its physiological effect upon the immigrant. The work of making up such an international menu is a matter of practical and not difficult detail. The dietitians or other persons responsible in hospitals, sanitoria, convalescent homes, and restaurants in industrial plants should (wherever the racial constitution of their people requires it) be made responsible for developing something of this sort.

5. The diet lists used by medical institutions such as hospitals and dispensaries should be adapted to the people, as well as to the diseases which are treated. The habitual foods of the nationality or race dealt with must be in the mind of the person who prepares the diet list, if it is to be of much real service. This means that the dietary problems of patients need to be handled by dietitians, visiting nurses, or social workers, who have some knowledge of foreign as well as of the characteristic American diet. The average visiting nurse or medical-social service worker cannot become an expert in dietetics and must depend upon the advisory dietitian or the visiting housekeeper. It may be expected that dispensary and visiting nursing associations should provide themselves, directly or through the cooperation of some other organization, with at least the advisory services of such a dietitian. Food clinics, in which dietitians can be consulted by nurses or general workers and to which patients can be sent when necessary, are needed in the large dispensary and in connection with the Health Centers which are now being established so rapidly throughout the country.

FOR THE HOMEMAKER

PRACTICAL BUDGET ACCOUNTING

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No course or text on home management would be considered complete without full consideration of the family plan of spending, or the budget, and of the household accounts necessary to keep a check on the division of expenditures, but, of a hundred families, how many really plan their spending or have any more than a vague idea of what becomes of their income from year to year? Personally, I know of only two such families. The distaste for keeping household or personal accounts is well nigh universal. I do not keep such accounts—probably you, who read this page, do not; yet we all realize that planned spending will give more for our income than haphazard spending and that if we really knew how much we are spending for food, clothing, or luxuries, from month to month, we might reduce our useless and thoughtless expenditure. Then we could obtain more of the things we really want but never seem to have money to buy, and we could save more for investment.

Some months ago, the secretary of the American Bankers Association sent us a request for some material and with the letter enclosed a reprint of an article from the journal of the association on "The Home Economics Department." A number of banks have lately established such a department, sometimes called a Home Service Department, with the purpose of showing families how to save money. As a plan of spending, or budget, is the best way to stretch the family income to provide for saving, the family budget is used as the basis of the work. A Budget Account Book is furnished to depositors, together with suggestions for drawing up the family budget.

While we were much interested in this new extension movement in home economics, we felt from our extensive experience in trying to get housekeepers to keep household accounts that the account book scheme would be of only limited success because only a very small proportion of women (or men) could be induced to keep household accounts for

more than a month or two; but we suggested a plan that might make the household budget a practical program. This was to the effect that a checking account could be used as a fairly good accounting system, provided that the full family income be deposited in the bank and that all expenditures be made by check, even to obtain cash. It was suggested that a special check book could be designed which would give the distribution of expenditures and make budget accounting nearly automatic.

This idea seemed to arouse interest and the illustrations herewith show how the accounting check book has been worked out.

MONTH OF Oct + Nov 1920 — EXPENDED FOR

DAY AND NO.	RECORD OF CHECKS	AMT OF CHECK	BANKED BALANCE	SAVINGS	FOOD	CLOTHING	RENT & OPERATING	ADVANCEMENT	LUXURIES	PERSONAL
	TOTALS AND BAL FORWARD	407.11	260.96	50.00	46.96	87.27	94.90	41.91	49.53	36.64
26th 10-27	TO Miss Addie Masten FOR Dress mkg (2)	12.30	248.56	.	.	12.30	.	.	.	.
30th 10-28	TO S. S. Mc Donald FOR 13.04 meat 12.02 Veg!!	25.08	223.48	.	25.08	.	.	.	.	.
30th 10-29	TO J Fleming Bros FOR Groceries	18.81 463.30	204.65	50.00	18.81 90.75	99.57	94.90	41.91	49.53	36.64
Nov 1st	DEPOSIT Salary	200.00	404.65	.	.	.	.	.	.	.
1st 11-1	TO E. State Bank FOR Educational Fund	50.00	354 65	50.00	.	.	.	.	.	.
2nd 11-2	TO A. H. Whitley + Co FOR Rent	60.00	294.65	.	.	.	60.00	.	.	.
2nd 11-3	TO Cash A/c FOR Groceries 3.50 Dress (3)	10.00	284.65	.	3.62	1.40	3.50	.	.	1.48
	DEPOSIT									

FIG. 1

RECEIPTS MONTH OF October 1920

DAY	FROM	SALARY OR FEES	INTEREST	DIVIDENDS					MISCEL'S	TOTAL
1st	A S H E	200								200
19	Liberty Bond Coupons		21 25							21 25
15	A S H E	200								200
										421 25

MONTHLY SUMMARY OF EXPENDITURES

		SAVINGS	FOOD	CLOTHING	RENT	OPERATING	ADVANCEM'T	LUXURIES	PERSONAL	
SUB-DIVISION	1	50 00	30 42	10 00	60 00	10 40	12 41		20 00	
	2		13 06	61 93		16 00	14 50	10 00	7 14	
	3		14 37	13 41		4 50	10 00	3 10	8 50	
	4		24 20	9 23		50	5 00	36 43	4 00	
	5		3 50			3 50				TOTAL
TOTAL		50 00	90 75	79 57	60 00	34 90	41 91	49 53	36 64	462 30
BUDGET		50 00	90 00	70 00	60 00	30 00	40 00	30 00	30 00	400 00
PLUS OR MINUS			+ 75	+29 57		+ 4 90	+ 1 91	+19 53	+ 6 64	+ 62 30

FIG. 2

Figure 1 gives a portion of the special interleaf and explains itself. The usual notations of date and number of the check, to whom drawn and for what, the amount of check, deposits, and bank balance, are provided for, and at the time of recording each check the amount is written in the columns provided for Food, Clothing, Operating, and other items. This gives a classified record of what is being spent from day to day and, at the end of the month, simple addition gives the total expended for the month and the total in each division of expenditure.

The other side of the special interleaf, shown in figure 2, provides for a classified record of receipts which are deposited in the bank and also a table for a Monthly Summary of Expenditures with five subdivisions under each main division. A list of sub-divisions suggested is given in the following key.

Key to subdivisions

SAVINGS	FOOD	CLOTHING	SHELTER	
			Rented	Owned
1. Savings Account, etc.	1. Groceries	1. Man's Clothes	1. Rent	1. Int., Ins., Taxes
2. Life Insurance	2. Meat, Fish, Fowl, Eggs, Cheese	2. Wife's Clothes	2. Business Carfare	2. Business Carfare
3. Payment on Bonds, House, etc.	3. Fruit, Vegetables	3. Child A Clothes	3. Fuel	3. Fuel for Heating
4. New Buildings or Additions	4. Milk, Cream, Butter, Ice	4. Child B Clothes	4.	4. Repairs and Decorating
5.	5. Outside Meals	5. Child C Clothes	5. Yard	5. Yard Expenses

OPERATING	ADVANCEMENT	LUXURIES	PERSONAL
1. Fuel, Light, Water, Telephone	1. Educational: Books, Magazines, Papers, Stationery	1. Tobacco, Candy, etc. Personal Service	1. Man's Personal
2. Wages: Service, Laundry Expense	2. Health: Physician, Dentist, Medicine	2. Entertainment, Travel, (Club Dues?)	2. Wife's Personal
3. Equipment Repairs, Replacements, Up-keep	3. Church, Red Cross, etc.	3. Gifts, Tips, Flowers, Jewelry, etc.	3. Child A Personal
4. Income and Personal Tax, War Taxes, Ins.	4. Music, Theatre (Movies?)	4. Auto Expense, Taxi	4. Child B Personal
5. Miscellaneous	5.	5.	5. Child C Personal

It is obvious that the key can be changed or modified to suit each family or individual using the check book. If preferred the United States Department of Agriculture classes of food might be used, i.e., 1 Fruits and vegetables; 2 Milk, cheese, eggs, meat, fish, and legumes; 3 Cereal products (also sugar, etc.); 4 Fats—butter, cream, lard, and oils; 5 Meals Outside. Under the Clothing column for personal accounting the following sub-divisions might be used: 1 Ready-made clothing; 2 Dress goods and making; 3 Underclothes, etc., 4 Footwear, 5 Cleaning and repairs. If the above or similar sub-divisions are to be kept, it will be necessary to indicate them on the check record. For example, in the first check recorded (fig. 1), the (2) after the word "dressmaking" indicates that the expense was for wife's clothing.

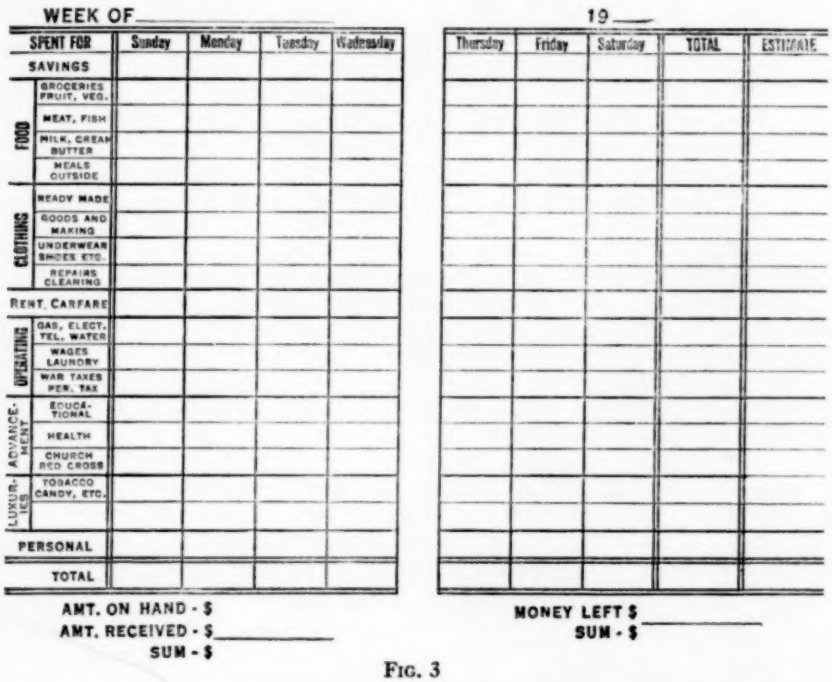

FIG. 3

To obtain cash, it is an easy matter to have checks cashed by local trades people, or at any bank. The last check recorded in figure 1 shows how such cash expenditures might be distributed. A Budget Memorandum card, folding to calling card size, has been designed to keep tract of personal allowances and cash expenditures, or the Weekly Allowance Book, illustrated in figure 3, might be used. The illustration

is full size, making a little book small enough for the pocket book. The Weekly Allowance Book is designed more particularly to keep track of what becomes of the weekly pay envelope where the family does not use a checking account.

For emergencies and to obviate the necessity of carrying much currency in the purse, one or two blank checks may be taken from the back of the check book and carried in the pocket book. When used, the expenditures should be recorded in the next check recording space, the next check detached and carried as a new blank check.

The special interleaf illustrated is designed for the small size checks, three checks to the sheet. Each record page provides for recording 15 checks and is followed by five sheets or 15 checks. This makes a convenient sized check book, about the width of this page and one and one-half inches shorter. A check book, containing 300 checks is less than one-half an inch thick. The special interleaves with page of directions and table for a yearly summary of expenditures may be obtained by any bank or individual at small expense.[1] The banks usually have on hand unbound small sized checks or, if not, the large sized checks may be used. The banks will have the books made up without charge or at moderate cost.

I have tried out the Accounting Check Book in my own family for three months and it is a decided success. Even now, we have been "shocked into reform" on certain expenditures. We are about ready to draw up a yearly budget for our family, a family that is decidedly not "theoretical." At the end of the year, we shall have a permanent record of every penny received and expended and I am certain we shall have obtained more satisfaction and more permanent value for our money. It is a great relief to know exactly "where you are at" financially in these uncertain times.

[1] The special interleaves may be obtained at 35 cents per set, and the Weekly Allowance Book at 10 cents each of the American School of Home Economics, 506 W. 69th St., Chicago. Sample pages on request.

SOME DON'TS FOR THE CONSUMER OF GAS[1]

Don't burn lamps in daytime or use lamps that are improperly adjusted. Each incandescent mantle burner has an adjusting device at the base for regulating the air and gas. Both must be adjusted to secure the maximum illumination without any hissing or roaring sound.

Don't use more gas under the hot-water tank than is necessary.

Don't burn gas without proper air mixture. If the mixture is not correct a wasteful flame will be produced. A pale blue flame will give the most efficient results.

Don't turn the gas on for cooking until the vessel is ready for use. Turn it off immediately when the cooking operation is completed.

Don't use gas at high pressure with long flames. Short flames, if properly directed, consume less gas for the same cooking operation.

Don't turn the gas high after the cooking vessel boils. You can not make the food any hotter. It will simply boil and no more. After the contents begin to boil the same temperature can be maintained with a smaller gas consumption.

Don't burn gas in a furnace without automatic thermostat control. Such an automatic device is always on the job, ready to prevent the over-heating of rooms, and therefore waste of gas, in addition to keeping the room at a uniform temperature. The cost of such an automatic device is not large and it will soon pay for itself in the saving of gas.

Don't keep rooms at over 68°. Don't keep windows or doors open for other than ventilating purposes; lower the temperature of the room by turning down the gas.

Don't burn gas in an ordinary coal furnace. It is wasteful and its use requires much more gas for the same heat delivered into the room than is required with specially built natural-gas furnaces.

Don't permit gas leaks on the premises. But never hunt for a leak with a match or light. The easiest way is to put soap-suds over the pipe or connection suspected. If gas is escaping the soapsuds will bubble. In many houses where tests have been made it has been found that about one-sixth of the total gas that passed through the meter was wasted by leaking pipe and fixtures.

[1] These directions are given with especial reference to natural gas, but nearly all of them apply equally to the manufactured product. They are quoted from Use and Conservation of Natural Gas, issued originally by the United States Fuel Administration, and reissued by the Penn. State Supt. of Public Instruction, especially for use in schools.

MORE FACTS ABOUT THE FARM WOMAN

In Reply to Questions Forming Part of the Farm Home Survey, 1919

Kitchen arrangement

SECTIONS	DISTANCE FROM WORK TABLE TO OTHER POINTS					HEIGHT OF WORK TABLE
	To sink	To stove	To cellar door	To kitchen pantry	To dining table	
	steps	*steps*	*steps*	*steps*	*steps*	*inches*
Eastern	5	4	9	7	9	30
Central	4	4	11	5	8	30
Western	3	3	14	6	8	31
33 States	4	4	11	6	8	30
Number of answers:						
Eastern	2684	2931	2924	2875	2880	2913
Central	2727	3565	3502	3281	3537	3563
Western	1091	1908	1461	1436	1875	1924
33 States	6502	8404	7887	7592	8292	8400

Sewing done by homemaker

SECTIONS	OWN UNDERWEAR			OWN OUTER GARMENTS			CHILDREN'S CLOTHING			MEN'S CLOTHING		AVERAGE WEEKLY MENDING
	All	Part	None	All	Part	None	All	Part	None	Part	None	
	per cent	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*hours*
Eastern	20	55	25	15	60	25	21	51	28	24	76	3.44
Central	17	58	25	21	65	14	27	49	24	23	77	3.69
Western	22	58	20	28	60	12	33	44	23	25	75	3.25
33 States	19	57	24	21	62	17	27	48	25	24	76	3.50
Number of answers:												
Eastern	3293			3272			2379			2920		2790
Central	4094			4113			3378			3763		3324
Western	2315			2336			1904			2077		1887
33 States	9702			9721			7661			8760		8001

CLEAN RESTAURANTS

A movement to make restaurants cleaner is important to a large majority of households, for many members of the family take at least one meal regularly away from home, aside from the occasional meal that others indulge in.

It is thus a household as well as a commercial step forward that is marked by the formation of a national association of restaurant proprietors, with sanitation as its fundamental principle. Their statement reads as follows: "The long felt want of cleaner restaurants has been keenly realized by the leaders in this industry who have begun to know that the reputation of the restaurant business has been badly damaged by those in the industry who are not running strictly clean places. The association was organized for the purpose of educating the restaurateur regarding the importance of sanitation in his business, and more than that, to guide the public to these places which are striving to run on a clean basis."

That patrons desire clean food served in a cleanly and sanitary manner goes without saying. It is doubtful if restaurateurs could adopt any measure that would be so conducive to increased business as the simple provision of strict cleanliness yet it is strange that such comment as this should be even possible. It is stranger still that it should be necessary to form a national association to stimulate activity in making restaurants clean. We know, however, that where strict supervision can not be maintained, the stimulation of pride will generally bring results.

The California State Board of Health, from whose bulletin the above statement is taken, welcomes this organization and will assist it in every way possible in its endeavor to provide cleaner public eating places. Other state boards of health should do all that they can to help the movement to grow and succeed. Particularly important is this since so much evidence has been accumulating to show that unsterilized table utensils—spoons, forks, cups, glasses—may be the common source of carrying influenza from one person to another.

EDITORIAL

The Sheppard-Towner Bill. It would be surprising, except from former experience, that such a bill as the so-called Maternity Bill should not quickly pass both Senate and House. Even though there has been the usual inertia of Congress to overcome, and the reluctance to enact at this short session any legislation involving the expenditure of money, this bill has been so generally approved, and is so much needed, that it is difficult to understand why decided opposition should have been aroused.

The bill is largely an outgrowth of the experience of the Children's Bureau. When, outside of the devastated regions of Europe, only three countries (Chile, Spain, and Japan) have a higher infant mortality than the United States, it seems time that we undertake vigorous measures to further instruction, such as this bill calls for, in the hygiene of maternity.

Miss Lathrop at the hearing before the House Committee said,

"According to the most reliable obtainable data the United States has the highest maternal death rate in a list of 17 civilized countries, and the chances of a child surviving its first year in this country are worse than in 10 other countries. . . . .

"This bill for the protection of maternity and infancy is one result of the social studies of the bureau interpreted into a plan of constructive public action, whose methods of care have been proven sound by many experiments here and abroad."

The bill asks for a Federal Board of Maternal and Infant Hygiene under the Department of Labor, with the Chief of the Children's Bureau as executive officer. The Secretary of Labor, the Surgeon General of the U. S. Public Health Service, and the Commissioner of Education are members of the board.

The bill passed the Senate with some amendments on December 18, and has been delayed ever since in a Committee of the House, which has been giving extended hearings both to those who favor and those who oppose the bill.

Attention, please! The JOURNAL office frequently receives letters from those wanting positions, and occasionally from those with positions to fill, and has been able sometimes to bring the two into touch with one another. It has not had facilities however to carry on acceptably

work of this kind. We propose now to reserve such space as is needed in our advertising columns for the insertion of advertisements at a low rate. If those who know now that they desire a position for next year should immediately insert such a notice it would be possible for those wishing teachers to communicate with them in time. The JOURNAL will be glad to forward letters to any using its columns in this way when they desire not to publish name and address.

OPEN FORUM

The Supply of Home Economics Teachers. In May, 1920 a questionnaire was sent out from Pratt Institute to institutions training teachers of home economics and listed in 1918–19 as having five or more on the faculty, and also to New York State institutions training such teachers. Twenty-eight questionnaires were sent and twenty answers were received—a fine proportion.[1]

Comparisons are very hard to make, but a few significant facts were clear. First, these 20 schools graduated about 600 teachers in 1920. Second, in 12 of the schools showing a final increase, there was a falling off in one of the war years, 1915 to 1918. Third, 6 schools showed fewer students entering in 1919 than in 1913, 12 showed more students entering; but the total increase of students entering 18 schools in 1919, as compared with the number entering in 1913, is the surprisingly small number of 71. It is true, of course, that there are many new centers of training. It is true also that many freshmen in home economics in universities never intend to teach, and others never reach that goal. The increase in the large centers of training is certainly inadequate in consideration of the need of large numbers of additional well trained teachers of home economics.

ISABEL ELY LORD.

Teaching Budgets and Accounts in Grades and High Schools. The Department of Household Economics, Teachers College, New York City, sent a letter of inquiry last spring to city supervisors of home economics regarding the amount and kind of instruction offered in the study of children's own accounts and budgets and household accounts and budgets in the grades and high school work in home economics

[1] The two largest training centers in New York State—Cornell and Teachers College—did not reply, and are therefore not included in the figures.

classes under their supervision. Twenty-six city supervisors sent replies giving some facts as to the teaching of budgets and accounts under their direction.

The following summary has been compiled and is here printed as of general interest. In the summary the letter "Y" indicates Yes; the letter "N," No; while "N R" indicates that no reply was given on the particular question.

Is any instruction given on *children's personal* accounts and budgets in the *grades?* Y 11, N 7, N R 8. Offered in 6th, 7th, and 8th grades.

Is such instruction given by special lessons? Y 7, N 7, N R 12.

Is such instruction given by incidental instruction in other lessons? Y 12, N 3, N R 11.

Is such instruction given through definite food work? Y 10, N 2, N R 14.

Is such instruction given through definite clothing work? Y 15, N 4, N R 7.

Are pupils in the grades required to keep their own personal accounts? Y 3, N 20, N R 1, two "help and encourage such accounts."

Three reported accounts kept respectively for 1 month—1 term—1 year.

Is instruction given to children *in the grades* in regard to *household* accounts and budgets? Y 14, N 5, N R 3. Four gave incidental instruction. Offered to 6th, 7th, 8th, and 9th grades.

The time given varied from "little" and "one hour" to "10–12 hours."

In the *high school* is any instruction given to children regarding their own personal budgets? Y 18, N 1, N R 2. Three gave incidental instruction. Two schools had no economic work in high school.

Are *high school* students required to keep *personal* accounts? Y 15, N 7, N R 2. Two gave no work in home economics.

The time for which personal accounts are kept varies from 1 month to 3 years.

In the *high school* is time given to *household* accounts and budgets? N 1, N R 7. Thirteen reported definite time given, 3 incidental instruction, 2 no home economics in high school.

Is high school home project work required in keeping accounts of student's family? Y 6, N 6, N R 12. Two reported "to some extent."

BENJAMIN R. ANDREWS.

Students' Time Record. Several institutions have made a practice of asking students to check up the amount of time required for their various daily tasks. This has been done particularly in the case of

home economics students by those living in practice houses where it has been customary to make schedules of the daily household tasks and keep time records. Cornell University, for example, has a time record sheet which students fill out showing the amount of time required for various tasks in the practice house. The Department of Agriculture in an investigation as to the amount of time for household tasks used a record form in the investigation carried on under the direction of Ilena Bailey in Missouri, Illinois, and Michigan beginning about 1914.

An experiment was tried at Teachers College last year of asking students in Household Arts to keep a time record for three days as to the number of minutes spent in various activities. A record sheet was given in which the various items were classified under personal activities, university activities, and housekeeping. The record sheet carried a list of about fifteen items down its left margin, and across the top were listed, in columns, the hours of the day from 6 a.m. to 11 p.m., with a similar column headed "total minutes" at the extreme right. Students were to write down during the day in the appropriate columns the number of minutes spent in different activities. A summary of eighty one-day records showed a statement of the minimum amount of time, the maximum amount of time, and the "mean" amount of time given by the students as follows: Care of person, minimum of 20 minutes up to a maximum of 120 minutes a day, with the mean time 70 minutes. Exercise, from 0 to 140 minutes with the mean 41. Meals, from 20 to 120 with the mean 81. Social and recreation, from 0 to 360 with the mean 81. Rest, from 0 to 240 with the mean 27. Waste time, from 0 to 120 with the mean 32. Class attendance, from 0 to 480 with the mean 240. Study, from 0 to 480 with the mean 89. Field work, from 0 to 260 with the mean 120. Care of room, from 0 to 140 with the mean 21. Preparation of meals (for 32 keeping house) from 20 to 180 with the mean 60. Sewing and mending, from 0 to 180 with the mean 0. (40 students did no sewing; of the 32 who did sew and mend the time given varied from 1 to 180 minutes, with the mean 40.) The zero reports indicate no time given on the day in question. The number answering varied somewhat for different questions.

The students who kept the record spoke in several cases of the personal benefit derived from the experience. While the arithmetical values given above are not supposed to have any far reaching significance they do give some indication of the amount of time required for various tasks in student life and something, at least, of the general distribution of the students' time.

BENJAMIN R. ANDREWS.

THE QUESTION BOX

Question: Can you tell me how to make the Armenian matzoon and the Greek matzoon? What is the method of preparation of these sour milk articles?

Answer: I do not believe it will be possible for anyone in this country to make exactly the same article as is made in Armenia and Greece. Matzoon is a fermented milk in which two kinds of fermentation are prominent. One of these is the lactic acid fermentation which causes the milk to sour. This is produced by a special race of lactic acid bacteria which can be purchased in drug stores under the name of Bacillus Bulgaricus. The other type of fermentation is caused by the growth of yeast and I do not know, and have not been able to ascertain, the variety of yeast which is present in these milks. It is, of course, a wild yeast and not a cultivated pure strain. Matzoon therefore, contains both lactic acid and alcohol, the yeast forming the alcohol. Matzoon differs only in very minor respects from Koumiss, Dadhi, and other similar sour milks used widely throughout Asia.

As these sour milks are produced in the Balkans small amounts of a previous batch of curd are saved to put into the next batch of milk to be soured. It carries with it the bacteria and yeast necessary for the fermentation. The milks are almost boiled, or heated to just below boiling, before putting in the curd. This is to destroy all foreign organisms as far as possible. It may be that some of the large manufacturers of rennet or junket preparations and of Bulgaricus cultures for making sour milks at soft drink stands and in the home can supply dried kernels of grain for the preparation of matzoon or other sour milks.

Question: Is there any way of preserving milk for use during the time that the cow is dry other than keeping it in the form of cheese? What is the simplest method of making and keeping cheese? Is there not some way to preserve milk for use as milk, either by evaporation, condensation, or canning that is practicable for farm use?

Answer: The methods of preserving milk for use at a later date are evaporation, condensation, and canning, and also the preparation of dried milks. Dried milks are prepared by two processes, although there are a number of patents protecting minor details in several processes. One is the Just process, in which the milk is thrown upon drums heated from within by steam. The milk dries within a few seconds and

is scraped off of the rotating drums by means of a knife edge. There are a dozen or more brands of milk prepared by this process. The other method for drying milk is that in which the milk is first pasteurized and partly condensed in vacuum. The product is then sprayed into a large room which is thoroughly ventilated with warm air and evaporation takes place almost instantaneously, the solids falling like snow. Many believe that this process produces what is probably the best dried milk on the market. It has a good flavor and is very readily dissolved in water.

I know of no way of preserving milk in the home other than in the manufacture of cheese.

Question: What is the food value of Swiss Chard?

Answer: Swiss Chard is one of the appetizing herbs of the cabbage family. It has essentially the same dietary properties as cabbage, lettuce, spinach, and is relatively low in energy value, but of exceptional value in the diet because of its content of certain mineral salts, especially calcium, and because of the vitamines it contains.

BOOKS AND LITERATURE

The A B C of Exhibit Planning. By EVART G. ROUTZAHN AND MARY SWAIN ROUTZAHN. New York: Russell Sage Foundation, 1918, pp. 236.

Traveling Publicity Campaigns. Educational Tours of Railroad Trains and Motor Vehicles. By MARY SWAIN ROUTZAHN. New York: Russell Sage Foundation, 1920, pp. 142.

The first book is a careful compilation of social experience up to the present in the use of exhibition material as a method of popular education in social welfare work of various kinds.

The chapters answer such questions as the following: Why do you wish to have an exhibit? Who should see it? What will you do with it? What do you wish to say in exhibit form? What forms will best express your facts? How will you utilize the floor space? How shall the exhibit be interpreted? How organized, how advertised, how followed up, and the cost?

Two illustrative plans are given—one for a state campaign centering around a traveling exhibit and one a continuous educational exhibit. The appendices discuss the exhibit budget, outlines for committee work, a baby week exhibit, and a typical explainer's talk. A bibliography follows.

Home economics workers should realize that the use of exhibit material is an art in itself which they can study to the great benefit of the Home Economics Movement. Those who are trying to do health work with children, for example, are finding that posters are a most useful method. Extension workers and even the class room teachers will get suggestions from this book. Classes for teachers in methods of teaching home economics, as in the methods of all subjects with strong social relationships, should be acquainted with the book and work upon the problems which it treats.

The second book brings together information regarding the many experiments in recent years in using trains, trolleys, automobile trucks and other transportation methods in connection with educational exhibi work. There are chapters on the purposes and advantages of traveling campa gns, on the different types of trains, including those for agricultural instruction, health work, war propaganda, safety first. Another chapter deals with motor vehicle campaigns including traveling dispensaries, child welfare work, speaking tours, and "carrying the canning kitchen to the food supply." Various problems of organization and administration are discussed in successive chapters as follows: Advanced publicity and organization; The message of the tour; Exhibit cars; The tour of the truck or train; and Follow-up work. The book includes also a reference list of train, truck, trolley, and other traveling campaigns and a bibliography.

Home economics workers who are touching the extension work field will find this volume indispensable in that it brings together the best experience both in this country and abroad on traveling publicity methods. Mrs. Routzahn has done a great service in adding this volume to the "Survey & Exhibit Series" of which the initial volume is the "A B C of Exhibit Planning." The old idea that anybody can plan an exhibit or work out publicity plans should rapidly give way to a recognition of the demonstrated fact that we have, in publicity work, an art calling for the nicest sort of discrimination and one to which psychology and sociology and other sciences are making real contributions.

B. R. ANDREWS.

Furniture for Small Houses. PERCY A. WELLS. New York: E. P. Dutton & Co., pp. 35, plates 57. $7.00.

Thoughtful observers of the growth of national taste, as illustrated in the architectural and art magazines, cannot fail to be impressed and pleased with the evident strong trend towards better housing conditions; even tenements and small apartments deriving the benefit of the best architectural skill. Owners are awaking to the spirit of the times. Because of coöperation and foresight it is now possible for an ever increasing number of people to live pleasantly in small homes of far better design than ever before. When the little house is the unit of a group it is a problem for an architect and he will insist upon giving the people the beauty as well as comfort, which human beings need to be self-respecting.

It is reasonable to hope that our America is gradually growing to be an art loving as well as an art producing country. From the older nations much has come to help us. Needs and desires are not strikingly different on opposite shores of the Atlantic and we can all profit by the experience of the others.

For instance, from England comes this book, called "Furniture for Small Houses," describing the results of experiments, at the Shoreditch Technical Institute, to reduce to the simplest possible terms, good form and construction in furniture. There are no startling innovations, no strange novelties in the pieces, but each one designed for the world-old human needs seems to represent the culmination of careful, intelligent study and choice. The book is fully illustrated with photographs and scale drawings of all the articles, a variety of them, for every use, and has a very readable text.

In addition to his study of materials, sizes, and methods, Mr. Wells has thought of design. However plain, none of his pieces is ordinary. Each one has a distinction of line and is thoroughly good proportion. There is almost no enrichment except in a little strap carving or beveling but the corners have been rounded off graciously and the square legs have been chamfered and tapered off on the inside—little easy refinements that count much and cost only thought. His adaptation of the gate leg table, brought up to date, is interesting and practical, and his various economies of space are also suggestive.

There are suggestions for finishes which are desirable, the most unusual one being the use of paint with a "combed" pattern for decoration. The comb is the tool formerly used in the atrocious process of "graining," now fortunately out of style. The new and legitimate use of the tool opens up many possibilities. The furniture is first painted a pleasing color, as, green and later a different one, as blue. Before the blue is dry, the steel comb is employed over the desired area and a design, wavy or curved perhaps, is etched out, showing the under coat of green.

The effect, though quiet must be iridescent and very attractive. Incidentally, painted furniture has fine decorative value and cheers up an interior wonderfully.

Naturally the owner or tenant of a better home has an added incentive and opportunity to express his taste in furnishing it. The necessary furniture ought to be good to look at as well as to use and he may be more restrained and thoughtful in buying it. Fortunately the furniture makers are producing many well designed articles of simple lines and moderate cost. Schools of industrial training are striving for better design and the people are gradually developing better appreciation.

Such a book as Mr. Wells' should have a wide circulation in school libraries, in shops, and in homes to stimulate and encourage the practical with the artistic in our own efforts.

RUTH ROBINSON TREGANZA,
Teachers College, Columbia University.

Food Facts for the Homemaker. By LUCILLE STIMSON HARVEY. Boston: Houghton, Mifflin Company, 1920, pp. 314. $2.50.

During recent years many of the more reliable books dealing with food problems have been prepared for classroom study

rather than for home use. For this reason Mrs. Harvey's book represents a somewhat unusual type, for she has tried to combine in it what she feels will prove helpful to homemakers on the basis of her experience as college teacher, a homemaker, and the town dietitian at the Brookline Food Center.

She wishes her book to be of special help to the young housewife and she provides much detailed information not only with reference to methods of food selection and preparation but also with reference to food composition, menu making, and food for children and invalids. Much of the material should prove helpful also to the older housekeeper with a wider range of experience in solving food difficulties.

The text is well written and most of the statements seem based on accurate and up-to-date information. A considerable number of recipes are included and these seem varied and appetizing. However, effort is made to group these recipes according to nutritive function rather than in the way customary in cook books. This is better in some ways but is confusing at times. For instance, soup recipes are scattered through various chapters. Recipes for certain cooked vegetables are found in Chapter X under the heading Fruits and Vegetables, while fruit and vegetable salads are in Chapter XI under the heading Fats; apple sauce and various fruit desserts are in Chapter XII on Sugar; and pickles and preserves are combined with beverages in a chapter entitled Food Accessories. Cake and cake fillings are placed under the heading Flour Mixtures, while simple desserts containing no larger proportion of sugar are placed in the Sugar chapter and recipes for cookies are in the chapter on Food for School Children.

It is doubtless desirable to teach women to think of the type of food value represented in the various parts of a menu, but the difficulties of applying such a classification to complex combinations of different kinds of foodstuffs is well illustrated in this book and would seem to interfere with its value in actual home use.

EMMA A. WINSLOW.

Laboratory Course in Physics of the Household. By CARLTON JOHN LYNDE, Ph.D., Professor of Physics in Macdonald College, Canada. New York: The Macmillan Company, 1919, pp. 146. $0.90.

This book has been especially planned to accompany Physics of the Household by the same author, and covers the ground recommended by the College Entrance Board. The preface states that it differs from similar courses in these ways: it contains exercises as well as experiments; it requires the use of the common weights and measures side by side with the metric system; it uses much apparatus familiar to the student; and it encourages the student to set up a laboratory in his own home. A list of apparatus for a home laboratory is given.

Household equipment and processes are used whenever possible to illustrate the application of the laws of physics. For example, the exercises on lever appliances deal with the tack lifter, scissors, can opener, nut cracker, potato ricer, knife, fork, spoon, broom, fire tongs, coffee mill, ice cream freezer, bread mixer—the last three to illustrate the wheel and axle. In a similar manner kitchen measuring appliances, water supply plumbing, gas plumbing, fire extinguishers, and the vacuum cleaner illustrate other principles of mechanics.

Heat includes exercises on thermometers, the kitchen range, the heating system, the hot water boiler, the fireless cooker, thermos bottles, refrigerators, fuels; while electricity, light, and sound use the same wealth of household illustration.

The book is excellent, not only for home economics students, but for any high school student. No boy or girl could complete such a course without an added interest in the home and the every day processes that are continually carried on there.

Professor Lynde was at one time in charge of the work in physics in the University High School, University of Chicago.

ALICE P. NORTON.

Ladies of Grecourt. By Ruth Gaines. New York: E. P. Dutton and Company, 1920, pp. 246.

Ladies of Grecourt might be called the official history of the Smith College Relief Unit in the Somme, written as it is by Miss Gaines who served with the Unit for many months. As such, it at once claims the interest of the alumnae and friends of Smith College who supported and followed this pioneer woman's college unit during its three years of active service. The book, however, has a wider appeal. Those concerned with home economics in its broad sense and with the progress women made in public work during the war, will find much to interest them in Miss Gaines' discussion of conditions in the sixteen villages in Picardy assigned to the Unit by the French Government. Housing and house furnishing, sanitation, clothing, and nutrition were some of their problems. That the Unit succeeded to a remarkable degree in its efforts to solve these problems can be judged from the tribute paid by a boy in one of the schools it helped to re-establish:

"When you return to your noble country, the void caused by your departure will be great for us, but in spite of the distance be sure that we shall never forget 'the good American ladies of Grecourt.' "

RUTH VAN DEMAN.

Bibliography on the Nutritive Value of Corn. A bibliography of interest to food students is being issued by the Research Information Service of the National Research Council at Washington. It is "A Bibliography of Investigations Bearing on the Composition and Nutritive Value of Corn and Corn Products," prepared by M. Helen Keith at the Illinois Agricultural Experiment Station. About 1200 articles and station bulletins are listed and fully classified with regard to the specific subjects investigated. This is a limited edition in mimeograph form and is sold at $2.00 a copy. Those who are doing or directing food research, or for any other reason wish to look up the literature of any phase of the questions of the feeding value of corn or any of the many food products made from corn would find this bibliography of great help.

BIBLIOGRAPHY OF HOME ECONOMICS

CURRENT PERIODICAL LITERATURE

COMPILED BY MARGARET NORTON

Food

Calcium Requirement of Man. Editorial, *Jour. Amer. Med. Assn.*, Dec. 11, 1920.

Diabetic Dietary. Edward E. Cornwall, *Jour. Amer. Med. Assn.*, Dec. 11, 1920.

Neglected Possibilities of Dietotherapy. Editorial, *Jour. Amer. Med. Assn.*, Dec. 4, 1920.

Germicidal Action in Milk. W. H. Chambers, *Jour. Bacteriol.*, Dec. 1920.

Milk Powder Agar for the Determination of Bacteria in Milk. S. H. Ayers and C. S. Mudge, *Jour. Bacteriol.*, Dec. 1920.

Growth on Diets Poor in True Fats. J. B. Osborne and L. B. Mendel. *Jour. Biol. Chem.*, Dec. 1920.

American Progress in the Bacteriological Sugars. E. H. Eitel, *Jour. Indus. and Engin. Chem.*, Dec. 1920.

Orange Vinegar. H. D. Poore, *Jour. Indus. and Engin. Chem.*, Dec. 1920.

Direct Identification of Soy-bean Oil. C. A. Newhall, *Jour. Indus. and Engin. Chem.*, Dec. 1920.

Studies on Technical Casein. M. Clark, H. F. Zoller, A. O. Dahlberg, and A. C. Weimar. *Jour. Indus. and Engin. Chem.*, Dec. 1920.

Bread Without Flour. Alfred Grademitz, *Popular Sci. Mo.*, Dec. 1920.

Food Tastes and Food Prejudices of Men and Dogs. Vilhjalmer Stefansson, *Sci. Mo.*, Dec. 1920.

Shelter

Building a Nation, Social Aspects of England's Housing Problems. Lawrence Veiller, *Architectural Rec.*, Nov. 1920.

American Furniture and the Designer. H. W. Frohne, *Good Furniture Magazine*, Dec. 1920.

Are You Selling Textiles By the Yard? W. L. Harris, *Good Furniture Magazine*, Dec. 1920.

How England is Meeting the Housing Shortage. Lawrence Veiller, *Housing Betterment*, Sept. 1920.

Furniture Fashions of Long Ago. F. J. Bryant, *Manual Training Magazine*. Dec. 1920.

Wanted, an Inexpensive House. Harry A. Mount. *Sci. Amer.*, Dec., 11, 1920.

Miscellaneous

German War Substitutes. A. Belter, *Amer. Sci. Mo.*, Dec. 1920.

Economic and Social Conditions in Germany: National Hygienic and Economic Conditions, Arthur Schlossman; Food Conditions and Agricultural Production, Dr. Huber; Housing Problems in Germany, Walther de Laporte; Child Feeding Work in Germany, R. L. Cary, *Annals of the American Academy*, Nov. 1920.

Surface Tension of Certain Soap Solutions and Their Emulsifying Powers. Mollie G. White and J. W. Marden, *Jour. Phys. Chem.*, Nov. 1920.

Nutritional Work in Public Schools (Chicago). Katharine B. Rich, *Jour. Amer. Med. Assn.*, Nov. 27, 1920.

Method of Classifying Families According to Income in Studies of Disease Prevalence. Edgar Sydenstricker and Wilford King, *U. S. Pub. Health Reports*, Nov. 26, 1920.

TEXTILES

COMPILED BY MABEL TRILLING

Fibre

An Experiment with Milkweed. Gilbert R. Merrill, *Textile World Jour.*, Mar. 20, 1920. Description of the experiment of making into yarn and cloth. Deficiencies as a textile.

Raw Silk and Many Uses. *Textile World Jour.*, Nov. 20, 1920. Piece goods—all-silk or part-silk, taffeta, satin, and crepe weaves. Satin—warp must be all-silk; weft can be medium quality. Taffeta requires good grade of silk. Crepes highly twisted thread used.

Flax Fibre Substitutes. *Textile World Jour.*, Nov. 27, 1920. Hard fibres impossible. Sisal and jute unsuitable. Ramie used in ousting or in combination with flax; not good for fabrics because of expense and trouble of retting and degumming. Used in table damask. Unsuitable for collars and cuffs because it cracks when folded. Hemp used as flax substitute must be softened to be successfully used; difficult to spin evenly.

Artificial Silk Manufacture in France. *Textile World Jour.*, Feb. 14, 1920. Its origin and development. Kinds of artificial silk. Methods of determing the various sorts of artificial silks.

Silk Culture in the Philippines. Ralph H. Butz, *Textile World Jour.*, Jan. 24, 1920 American grown silk is coming to be considered a necessity. Success will attend the efforts.

to establish the production of raw silk in the Philippines. The desirable features in the Philippines for the silk industry.

Cotton and the Automobile Tire. Branwell, *Textile World Jour.*, July 10, 1920. Discussion of cotton as the major part of tire. Kinds to be used. Kinds formerly used.

Wool Propaganda. *Textile World Jour.*, Vol. 58, p. 65 (203). Wool dropped from 50 per cent to 75 per cent at shearing time. Effort of wool growers association to hold product. Fleeces held in Australia for two years.

Dyeing Linen Fabrics. *Textile World Jour.*, Aug. 28, 1920. Linen fibres do not absorb readily the direct dyestuffs so the rate of absorption is modified by a delaying process by: diminishing salt, or increasing soda ash, or addition of turkey red oil or soap.

Effect of Twist on Cotton Yarn. *Textile World Jour.*, Aug. 14, 1920. Elasticity of yarn varies directly with twist. Increase in twist increases strength up point to multiplier of 4.25 and then strength decreases as twist increases.

New Type of Lace. *Textile World Jour.*, Mar. 13, 1920. New ideas being used in textures and styles. Utilizing fibres of wood, hops, nettles, broom, and potato plant.

Crepe Yarns and Fabrics. *Textile World Jour.*, Nov. 20, 1920. Creping due to amount of twist causing contraction. Contractile power dependent upon size of material being twisted, amount of twist in thread and degree of resistance. Cloth contraction dependent upon the number of turns of twists to inch, the number of threads, and thickness of threads. Cause of finishing troubles: too much contractile power for shrinkage desired and then lie in stock; insufficient turns of twist for the same amount of threads in the picking.

The Value of Shoddy. *Textile World Jour.*, Sept. 4, 1920. Some shoddy fabrics more valuable than the virgin wool. Purchaser gets what he pays for.

Standardization

State Pure Fabric Bill. *Textile World Jour.*, Apr. 3, 1920. Manufacturers oppose proposed legislation. Those favoring the bill have prejudiced the public minds concerning virgin wool and shoddy. Shoddy compared to noils. If the knowledge that a garment contains shoddy is of value to the public, so is the knowledge that a garment contains noils valuable. Real uses of shoddy. The passing of the bill will put the burden on the consumer for the purchaser will have to pay a higher price for a poorer quality of goods or choose a cloth of less value for the same price. Labelling shoddy will induce the buyer to give preference to virgin wool which will open the doors wide to fraud in offering a low grade of virgin wool at excessive prices.

Hearings on Truth-in-Fabrics Bills. *Textile World Jour.*, Mar. 27, 1920. Discussions of bills introduced by Rogers, French, Barclay and Rainey. Prejudice in favor of virgin wool and against shoddy has no adequate sanction. Some shoddy is better than virgin wool. Roger's bill protects purchaser of commodities of all kinds. This bill is known as the Honest Merchandise Act. French bill is connected specifically with woolen and worsted industry.

Standardization of Dyestuffs. *Textile World Jour.*, Vol. 58, p. 47 (267).

To Prevent Deceit. *Textile World Jour.*, Mar. 27, 1920. Text of bill introduced in the House by Representative Rainey. Object—to prevent deceit in the manufacturer's sale of woven fabrcs or yarns. Cited as the stamped fabric law. Content—no manufacturer of woven fabrics, yarns or articles of apparel made from either shall sell, trade, or exchange the same in interstate commerce unless he shall cause the same to be stamped or tagged in such manner as the Sec. of Commerce may designate so that the stamp or tag shall correctly state the per cent by weight of virgin wool, reworked wool, shoddy, cotton, or silk contained in such fabric or yarn. The name of manufacturer shall also be included on said stamp or tag.

NEWS FROM THE FIELD

British Research Associations. Research associations for the following trades have now been formed in accordance with the Imperial Government's scheme for the encouragement of scientific and industrial research, viz.: boot, shoe, and allied trades, cotton, sugar, iron manufacture, motor and allied manufactures, photography, Portland cement, woolen and worsted industries, scientific instruments, india rubber and tyre manufactures, linen industry, glass, chocolate, cocoa, sugar, confectionery, and jam manufacture.

Research associations for the following trades are in process of formation: music industries, refractory materials, non-ferrous metals, laundering, and leather trades.

—From *The South African Journal of Industries*, Jan., 1920.

NOTES

There have been some changes, during the last few months, in the personnel of the Office of Extension Work for Women, North and West, of the United States Department of Agriculture, Florence Ward in charge. Agnes Ellen Harris (whose position in Texas is filled by Jessie W. Harris of the University of Nebraska) has charge of the states in the Northwest section (Wash., Ore., Idaho, Wyo., Mont., N. D., S. D.); and Mrs. Edith C. Salisbury of those in the Southwest section (Cal., Utah., Nev., N. M., Ariz., Colo., Neb.) Grace Frysinger is in charge of the Central Western section (Mo., Kan., Iowa, Ill., Mich., Wis., Minn., Ohio, Ind.); while, since Miss Van Hoesen's resignation, no one has direct supervision of the New England section including the six New England states, New York, New Jersey, Pennsylvania, and Delaware. Miriam Birdseye's work is with the specialists in the field.

Martha Koehne, formerly head of the Chemistry Department at Wilson College, Pa., and chemist in the Ohio State Department of Health, and from 1918–1920 instructor in biochemistry, School of Hygiene and Public Health, Johns Hopkins University, has been appointed assistant professor in the University of Washington to teach nutrition.

The National Research Council and the National Academy of Sciences are to have a new home in Washington. The site for the building has been given through the generosity of a number of well known people. It comprises the entire block bounded by B and C Streets and Twenty-first and Twenty-second Streets, Northwest, and faces the Lincoln Memorial in Potomac Park. Funds for the erection of the building have been provided by the Carnegie Corporation.

Sydney Technical College, New South Wales, announces a special course of instruction for professional women in dressmaking and ladies tailoring. The course includes theoretical and practical instruction in designing and cutting, and lectures in the history of costume, textiles, workroom management, bookkeeping, and a certain amount of instruction in drawing. It is restricted to women in the dressmaking trade.

The Pittsburgh Urban League, one of the many branches of the National League on Urban Conditions among Negroes, gave help and instruction in 1400 homes during 1919. Mr. Jackson, the educational secretary, in seeking material for future social workers, though he has not yet covered the field, has found 450 colored students in northern Universities. Many of these are home economics students.

AMERICAN HOME ECONOMICS ASSOCIATION

WITH THE DIVISION OF SUPERINTENDENCE, N. E. A.

Hotel Dennis, Atlantic City, February 28 and March 1, 1921

MONDAY, FEBRUARY 28

9.00 a.m.

President's Address

Preliminary Business

General Session. Mary Sweeny, President, presiding

Topic: Does Home Economics Teaching Function as it Should for the Girl of High School Age?

Home Economics in the General High School
Mrs. Henrietta Calvin, Specialist in Home Economics, Bureau of Education

Home Economics in the Commercial High School
Mrs. Evelyn Wight Allan, Prin., Girls' Commer. High School, Brooklyn, N.Y.

Experimental Work in the Merrill-Palmer School
Edna White, Director, Merrill-Palmer School, Detroit

2.00 p.m. General Session. Mrs. Henrietta Calvin presiding

The Responsibility of the Home Economics Teacher to the Community
Agnes Houston Craig, Supervisor of Home Economics, Springfield, Mass.

Topic: Methods of Contributing to Vitality of Teaching in the Grades

The Home Project
Mrs. Maude Gregory Adams, State Supervisor Vocational H. E., Ohio

The School Project
Helen Goodspeed, State Supervisor of Home Economics, Wisconsin

The Use of the School Doll as a Means of Teaching Sensible Dress
Adelaide Laura Van Duzer, Supervisor of Home Economics, Cleveland, Ohio

7.30 p.m. Council Meeting

TUESDAY, MARCH 1

9.00 a.m. General Session. Edna White presiding

Topic: How Can the School Child Be Interested in Right Food Habits through Regular School Channels?

The High School Class in Foods
Florence Willard, Washington Irving High School, New York

Foods Work in the Grades
Mabel C. Bragg, Assistant Superintendent of Schools, Newton, Mass.

What Can the Instructor in Physical Education Contribute?
F. W. Maroney, M.D., Dir. Physical Training, Dept. Pub. Instruction, N. J.

What Are the Educational Possibilities of the School Lunchroom?
Katharine A. Pritchett, Supervisor Nutrition, Dept. Pub. Instruction, Pa.

The Standardization of Nutrition Workers
Mary McCormick, Supervisor of Nutrition, State Dept. Education, N. Y.

2.00 p.m. General Session. Mary Sweeny presiding

Factors Involved in Training Girls as Consumers
S. Helen Bridge, Head of Home Economics Education Dept., Univ. of Nebr.

Points of Interest in Government Research Laboratories for the Home Economics Worker
Minna C. Denton, Assistant Chief of Home Economics, U. S. Dept. Agr.

Business Meeting and Reports of Committees